

## Risk Management

# Using a Bull Call Spread

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Producers often purchase options on agricultural commodities to protect them from unfavorable price moves. The cost of the option premium is a disadvantage, however. Depending upon market volatility and time to expiration, option premiums can sometimes seem expensive. A producer may want to consider selling (writing) an option so that the option premium is paid to him. Simultaneously buying and writing options (i.e., an options spread) can reduce option expenses while still providing some level of price protection. However, there are risks to writing options that producers should fully understand.

One example of an option spread is referred to as the bull call spread. It involves simultaneously buying and selling different call options. Selling an out-of-the-money call option limits the amount you can gain if prices increase, but the premium you receive from the option sale reduces the net cost of the option you purchased. It might be used when the marketer is bullish on a market up to a point (i.e., the marketer believes the market has limited upside potential). An attractive feature of the bull call spread is that once the strike prices are selected and the premiums are known, the user knows his maximum loss and net potential gain.

### *When to Use a Bull Call Spread*

A producer can use a bull call spread when trying either to protect or to benefit from a rising market. Two examples would be hedging an

input such as corn or regaining ownership of a commodity that has been sold on the cash market or forward contracted. A bull call spread is usually used when the market is fairly volatile and, as a result, the outright purchase of a call option is considered too expensive.

### *How a Bull Call Spread Works*

In this type of spread, the user of a commodity would buy a call option at a particular strike price and sell a call option at a higher strike. Typically, both options are traded in the same contract month. The loss is limited to the difference between the cost of the call option bought and the call option sold plus commissions (i.e., the net cost of the two options). The gain is limited to the difference between the strike price of the call option bought and the strike price of the call option sold less the initial cost and commission.

As an example, consider a producer who has sold his wheat on the cash market and wants to regain ownership of the wheat on the futures board because he expects a seasonal rally in the futures market price. Assume that the producer does not want to use futures because of downside price risk, but the premiums for at-the-money call options are so expensive because of the time to expiration that most of the price increase he expects would be spent on the option premium.

In this case, the producer could choose to use a bull call spread. In this example, assume that



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the current Kansas City Board of Trade March wheat contract is trading at \$9.71 per bushel. March call options premiums are listed in Table 1. The producer begins the strategy by buying a call option near the money, in this case a \$9.70 call option for \$1.87 (\$9,350 per 5,000-bushel contract).

At the same time, he writes (sells) a call option with a strike price above the previous call option. In our example, he writes a \$12.20 call option and receives a premium of \$0.44 (\$2,200 per 5,000-bushel contract). His net cost to implement the strategy (excluding commissions) is \$1.43 or \$7,150 per contract. This is demonstrated in Table 2.

Table 1. March KCBT call option premiums.

Strike price	Premium
\$9.70	\$1.87
\$10.20	\$1.38
\$10.50	\$0.88
\$11.20	\$0.74
\$11.50	\$0.59
\$12.20	\$0.44

Table 2. Costs to implement strategy.

Action	Income/ expense (\$/bushel)	Income/ expense (Total \$)
Buy KCBT March \$9.70 call option	-\$1.87	-\$9,350
Sell KCBT March \$12.20 call option	+\$0.44	+\$2,200
Total expense	-\$1.43	-\$7,150

The producer is assured that the most he will lose is \$7,150 plus commission costs, the initial cost of implementing the strategy. That would happen if the March futures price was at or below \$9.70 when the options contracts expire. In this case, both call options would expire worthless.

However, if the March futures price was above \$12.20 when the options contracts expire, the most the producer stands to gain would be \$2.50 per

bushel (\$12,500 per contract) less the initial cost (\$7,150 per contract) and commissions, or \$1.07 per bushel (\$5,350 per contract). To determine the maximum gain, start with the sold call option strike price, subtract the bought call option strike price, subtract the initial cost (net premium) to implement the strategy, and subtract the commission costs (\$12.20 - \$9.70 - \$1.43 - commission costs). Table 3 summarizes the results of the example bull call spread at varying futures settle prices. Figure 1 provides a graphical summary of the results.

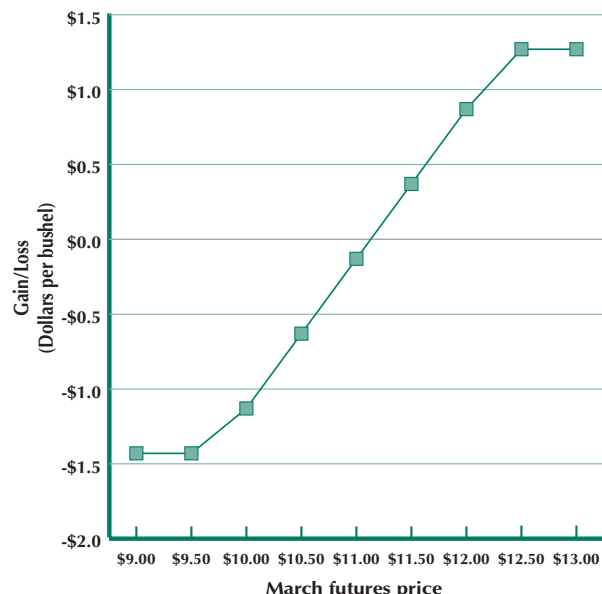
One fact to keep in mind when viewing the results in Table 3 and Figure 1 is that those gains and losses assume you are at the option expiration date and there is no remaining time value. If the futures price were at \$12.50 (or \$9.50), you would actually have a slightly smaller profit (loss) than the \$1.07 (-\$1.43) shown in Table 3 and Figure 1. How much it would differ would depend on the difference in the time value of the two options when you got out of the trade, which will be a function of the perceived risk in the market.

Table 3. Bull call spread results.

March settle price	\$9.70 wheat call	\$12.20 wheat call	Initial cost (\$/bushel)	Gain/loss <sup>1</sup> (\$/bushel) (\$/contract)
\$9.00	\$0.00	\$0.00	\$1.43	-\$1.43 -\$7,150.00
\$9.50	\$0.00	\$0.00	\$1.43	-\$1.43 -\$7,150.00
\$10.00	\$0.30	\$0.00	\$1.43	-\$1.13 -\$5,650.00
\$10.50	\$0.80	\$0.00	\$1.43	-\$0.63 -\$3,150.00
\$11.00	\$1.30	\$0.00	\$1.43	\$0.13 \$650.00
\$11.50	\$1.80	\$0.00	\$1.43	\$0.37 \$1,850.00
\$12.00	\$2.30	\$0.00	\$1.43	\$0.87 \$4,350.00
\$12.50	\$2.80	\$0.30	\$1.43	\$1.27 \$6,350.00
\$13.00	\$3.30	\$0.70	\$1.43	\$1.27 \$6,350.00

<sup>1</sup>These values do not include commission costs.

Figure 1. Bull call spread.



## Margin Requirements

Ordinarily, producers do not like to write (sell) options because of the limited gains and unlimited risk. In addition, money for a margin deposit and for potential margin calls is necessary to support these positions. If the market rises toward the position of the call option writer, the writer will be subject to margin calls as the value of the call premium increases. However, with the bull call spread, no margin money is necessary as long as both positions are maintained. The rationale for this is that in a rising market the purchased call option premium will always increase equal to or faster than the sold call option premium. In other words, there

would always be enough profit from the purchased call to more than offset the losses on the sold call as the futures market price increases.

## Why Consider a Bull Call Spread

A bull call spread is an effective way to hedge against or benefit from a rising market, especially when you think the upside potential is limited. This strategy requires less cash outlay than the outright purchase of a call option; therefore, it has less downside risk but it also has less profit potential.

### Other advantages

- It is easy to implement.
- Little or no money is required for a margin deposit or margin calls (check with your own broker).
- It is less expensive than an outright purchase of a call option.
- There is limited risk. A producer knows the most he can gain or lose from the position.

### Disadvantages

- There is limited gain from the strategy.
- Two commission costs will probably be charged (check with your own broker).
- The long option position is an eroding asset because the time value erodes.
- The sold call option can be exercised by the buyer of the option at any time.

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